APPLE'S TENTH ANNIVERSARY

APPLE PRODUCTS

TECHNICAL SPECIFICATIONS

MACINTOSH® PLUS

Product Specifications

INTRODUCED	January, 1986
PRICE	Suggested retail price of $2199.00 includes keyboard and mouse
PROCESSOR	Motorola MC68000 with 32-bit internal architecture and 7.83 MHz clock frequency
OPERATING SYSTEM	Macintosh Operating System
MEMORY	• 1 MB RAM, expandable to 4MB • 128 K ROM • 256 Bytes of user-controllable parameter memory
STORAGE	800K, 3.5-inch disk drive
EXPANDABILITY	Closed architecture
KEYBOARD	78-Keys including numeric keypad and cursor keys; software mapped; detachable
MOUSE	Mechanical tracking; optical shaft encoding at 3.54 pulse-per-mm of travel (90 pulse-per-inch)
CLOCK/CALENDAR	CMOS custom chip with 4.5 volt, user-replaceable battery backup
DISPLAY	9-Inch diagonal screen; 512 by 342 pixel bit-mapped display
INTERFACES	• Synchronous serial keyboard bus • 2 RS232/RS422 serial ports • Mouse • External disk drive • SCSI
SOUND	4-voice with 8-bit digital/analog conversion using 22 KHz sample rate

SIZE/WEIGHT

Weight	Height	Width	Depth
7.5 kg	344 mm	246 mm	276 mm
16 lb, 8 oz	13.5 in	9.7 in	10.9 in

INTERNATIONAL VERSIONS	Currently produced in 23 versions and 14 languages

November 1987

MACINTOSH ® SE

Product Specifications

INTRODUCED

March, 1987

PRICE

Suggested retail price--$2898 (includes Apple Keyboard, two 800 K disk drives; $3698 (includes Apple Keyboard, one 800 K disk drive, one internal 20 MB SCSI hard disk drive)

PROCESSOR

Motorola MC68000, 32-bit internal architecture with 7.83 MHz clock frequency

OPERATING SYSTEM

Macintosh Operating System

MEMORY

- 1 MB RAM, expandable to 4 MB
- 256K ROM
- 256 Bytes of user-controllable parameter of memory

STORAGE

- 800K 3.5-inch disk drive
- 20 MB internal hard disk drive

EXPANDABILITY

One internal expansion slot

KEYBOARD

- Apple Keyboard: 81 keys, including 10-key numeric keypad and cursor keys; detachable
- Apple Extended Keyboard: 105 keys including 10-key numeric keypad, 15 function keys and T cursor pad; detachable

MOUSE

Mechanical tracking, optical shaft encoding at 3.54 pulse-per-mm of travel (90 pulse-per-inch)

CLOCK/CALENDAR

CMOS custom chip-powered by 7-year lithium battery

DISPLAY

9-Inch diagonal screen with 512 by 342 pixel bit-mapped display

INTERFACES

- 2 Apple Desktop Bus (ADP) connectors for communication with keyboard, mouse and other input devices
- Two RS-232/RS422 serial ports
- External disk drive interface
- SCSI interface
- System Expansion connector
- Sound port for external audio amplifier

SOUND

4-voice sound with 8-bit digital/analog conversion using 22 KHz sample rate

SIZE/WEIGHT

Weight	Height	Width	Depth
7.7-9.5 kg	345.4 mm	243.8 mm	276.2 mm
17 to 21 lb	13.6 in	9.6 in	10.9 in

INTERNATIONAL VERSIONS

Currently produced in 14 versions and 12 languages

November 1987

MACINTOSH® II

Product Specifications

INTRODUCED

March, 1987

PRICE

Suggested retail price--$3898 (includes one internal 800 K floppy disk drive, Apple Keyboard and mouse); $5498 (includes above plus one internal 40 MB SCSI hard disk drive)

PROCESSOR

- Motorola MC68020, full 32-bit internal architecture with 15.7 MHz clock frequency
- Motorola 68881 floating point co-processor (IEEE standard)

OPERATING SYSTEM

Macintosh Operating System

MEMORY

- 1 MB RAM, expandable to 8 MB on board and to 2 GB in NuBus slots
- 256K ROM
- Memory management with optional 68851 PMMU

STORAGE

- 800 K, 3.5-inch disk drives
- 20, 40 and 80 MB SCSI internal hard disk

EXPANDABILITY

6 NuBus expansion slots

KEYBOARD

- Apple Keyboard: 81 keys, including 10-key numeric keypad
- Apple Extended Keyboard: 105 keys including 10-key numeric keypad,15 function keys and T cursor pad

MOUSE

Mechanical tracking, optical shaft encoding at 3.54 pulse-per-mm of travel (90 pulse-per-inch)

CLOCK/CALENDAR

CMOS custom chip-powered by 10-year lithium battery

DISPLAYS

Apple High-Resolution 12-inch and 13-inch Monochrome Monitors, 640 by 480 pixels

VIDEO CARD

Apple custom frame buffer chip; 1 to 4 bits-per-pixel with 16 colors or shades of gray or 8 bits-per-pixel with 256 colors or shades of gray; palette with 16.8 million colors

INTERFACES

- 2 RS-232/RS-422 serial ports
- 1 SCSI port
- 2 Apple Desktop Bus (ADP) ports
- 6 NuBus internal slots supporting 32-bit address and data lines
- 1 Sound port

SOUND

Apple custom digital sound chip; 4-voice wave-table synthesis; stereo sampling generator for driving stereo equipment

SIZE/WEIGHT

Weight	Height	Width	Depth
10.9-11.8 kg	140 mm	474 mm	365 mm
24-26 lb	5.51 in	18.66 in	14.37 in

INTERNATIONAL VERSIONS

Currently produced in 14 versions and 12 languages

November 1987

APPLE® IIe

Product Specifications

INTRODUCED

September, 1986 (original version introduced January, 1983)

PRICE

Suggested retail price--$829

PROCESSOR

65C02 microprocessor with 1.02 MHz clock speed; 16-bit address bus with 64K addressable memory; 8-bit databus

OPERATING SYSTEM

ProDOS 8, DOS 3.3, Pascal, CP/M (with co-processor card)

MEMORY

- 128 K RAM, optionally expandable to 1.12 MB
- 16 K ROM

STORAGE

Disk drive available as option

EXPANDABILITY

- 7 Multi-purpose expansion slots
- 1 Video/auxilliary slot occupied by an 80-column text display or 64K RAM card

KEYBOARD

81-key typewriter-style keyboard with 18-key numeric keypad and 2 programmable function keys; 128 ASCII characters, including 96 upper and lower case alphnumeric characters and 32 control characters

MOUSE

Available as option

CLOCK/CALENDAR

Available as option

DISPLAY MODES

- 40- or 80-column text, 24 lines, 5 by 7 dot matrix
- Low resolution: 16 colors, 40H by 48V dots
- High resolution: 6-colors, 280H by 192V dots
- Double high resolution: 16 colors, 560H by 192 V dots

INTERFACES

- Video output--Monochrome and NTSC compatible color
- Game I/O signals
  - --3 switch inputs
  - --4 analog hand control inputs
  - --4 annunciator outputs
  - --1 strobe output
  - --ground and +5 volts output
  - --cassette input and output

SOUND

Audio generator with built-in speaker

SIZE/WEIGHT

Weight	Height	Width	Depth
12 lb	4.5 in	15.13 in	18 in
5.45 kg	11.43 cm	38.43 cm	45.72 cm

INTERNATIONAL VERSIONS

Currently produced in 10 versions and 5 languages

November 1987

APPLE® IIc

Product Specifications

INTRODUCED	September, 1986 (original version introduced April, 1984)
PRICE	Suggested retail price--$799.00
PROCESSOR	65C02 microprocessor with 1.02 MHz clock speed; 16-bit address bus with 64K addressable memory; 8-bit data bus
OPERATING SYSTEM	• DOS 3.3 • Pro DOS • Pascal
MEMORY	• 128 K RAM, optionally expandable to 1.12 MB • 32 K ROM
STORAGE	5.25 Inch size with 143 KB capacity
EXPANDABILITY	Closed architecture
KEYBOARD	63-key, full-size keyboard with 128 ASCII characters, including 96 upper and lowercase alphanumeric characters and 32 control characters
MOUSE	Available as option
DISPLAY MODES	• 40 or 80 column text by 24 lines • Low resolution: 16 colors, 40 H by 48 V dots • High resolution: 6 colors, 280 H by 192 V dots • Double high resolution: 16 colors, 560 H by 192 V dots
INTERFACES	• Connector for mouse, joystick, hand controller • 2 Serial ports for printer, modem, accessories • Connector for video expansion • NTSC (composite) color video via RCA phonojack • External disk drive port • Connector for external power supply
SOUND	Built-in speaker with volume control knob and headphone jack

SIZE/WEIGHT

Weight	Height	Width	Depth
7.5 lb	2.5 in	12 in	11.5 in
3.4 kg	6.35 cm	30.48 cm	29.21 cm

INTERNATIONAL VERSIONS	Currently produced in 5 versions and 2 languages

November 1987

APPLE® IIGS

Product Specifications

INTRODUCED

September, 1986

PRICE

Suggested retail price--$999

PROCESSOR

- 65C816 microprocessor with 2.8 MHz clock speed; 8-bit data bus, 24-bit address bus allows with16 MB of addressable memory

OPERATING SYSTEM

- Pro Dos 16 and Pro DOS 8
- Pascal
- CP/M (with Z-80 card)
- DOS 3.3

MEMORY

- 256 K RAM, expandable to 8 MB
- 128 K ROM, expandable to 1 MB

STORAGE

Disk drive available as option

EXPANDABILITY

1 dedicated, multi-purpose RAM/ROM memory expansion slot and 7 additional input/output slots

KEYBOARD

Detached 80-key keyboard with 10-key numeric keypad

MOUSE

Apple DeskTop Bus mouse standard

CLOCK/CALENDAR

Built-in clock for automatic dating of files

DISPLAY

- 40 or 80 column text by 24 lines
- Low resolution: 40 H by 4 V dots, 16 colors
- High resolution: 260 H by 192 V dots, 6 colors
- Double high resolution: 560 H by 192 V dots, 16 bcolors
- Super High resolution: 320 H by 200 V dots, 16 colors per scan line out of a palette of 4,096 colors
- Super High resolution: 640 H by 200 V dots, 4 colors per scan line out of a palette of 4,096 colors

INTERFACES

- NTSC composite color video output
- Analog RGB video output
- Apple DeskTop Bus port for keyboard, mouce and other input devices
- SmartPort interface for connecting 5.25- and 3.5-inch disk drives
- 2 Serial ports using the SCC communication chip
- Game/joystick port
- Input/output sound connector on logic board

SOUND

Ensoniq 32 oscillator synthesizer chip with dedicated 64K RAM

SIZE/WEIGHT

Weight	Height	Width	Depth
9 lb 4.6 in	11.4 in	13.75 in	

INTERNATIONAL VERSIONS

Currently produced in 11 versions and 7 languages

November 1987

APPLE COMPUTER PERIPHERALS

(not inclusive list)

KEYBOARDS	SUGGESTED RETAIL PRICE
Apple Keyboard	$ 129.
Apple Extended Keyboard	229.
Macintosh Plus Keyboard	129.
MONITORS	
Apple Monochrome Monitor	129.
Apple High-Resolution Monochrome Monitor	399.
AppleColor High-Resolution RGB Monitor	999.
AppleColor RGB Monitor	499.
AppleColor Composite Monitor	379.
STORAGE DEVICES	
Macintosh Internal 800 K Drive	299.
Macintosh Internal Hard Disk	
20SC	999.
40SC	1,599.
80SC	2,699.
Apple Hard Disk	
20 SC	1,299.
40 SC	1,999.
80 SC	3,199.
Apple Tape Backup 40SC	1,499.
Apple PC 5.25	399.
Apple 5.25 Drive	299.
Apple 3.5 Drive	399.
UniDisk 3.5	399.
PRINTERS	
ImageWriter II Printer	595.
ImageWriter LQ Printer	1,399.
LaserWriter Printer	4,999.
LaserWriter Plus Printer	5,299.
COMMUNICATIONS PRODUCTS	
AppleShare File Server	799.
AppleTalk® PC Card	399.
Apple Personal Modem	399.
AppleLine	1,295.
AppleFax™ Modem	699.
EtherTalk™ Interface Card	699.
SYSTEM SOFTWARE	
HyperCard™	49.
MultiFinder™	49.

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